

**From:** [Bojes, Heidi \(DSHS\)](#)  
**To:** [Young, Patrick](#)  
**Cc:** [Turner, Philip](#)  
**Subject:** FW: Final Sampling Protocol and Detection level - (b) (6) Street  
**Date:** Thursday, January 26, 2017 1:36:30 PM

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Patrick,

Can you help us determine the specifics regarding indoor air sampling?

We need to know how many samples, sampling height, temperature etc. It would also be good to get confirmation on the method (OSHA 1003).

Thanks again,

Heidi

[Heidi Bojes, PhD, MPH](#)

[Director, Environmental Epidemiology and Disease Registries Section](#)

[Texas Department of State Health Services](#)

[Direct: \(512\) 776-6351](#)

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**From:** Turner, Philip [mailto:[Turner.Phillip@epa.gov](mailto:Turner.Phillip@epa.gov)]

**Sent:** Thursday, January 26, 2017 12:31 PM

**To:** Enders, Jhana ; May, Shaun

**Cc:** 'Milton, S' ; Bojes, Heidi (DSHS) ; Young, Patrick ; Stoughton, Casie

**Subject:** Re: Final Sampling Protocol and Detection level - (b) (6) Street

My thoughts:

The confirmation sampling should repeat locations of monitoring with additions. I'm thinking evenly spread throughout and to be relatively near floor vents (easiest way for vapor to enter and assuming this home has floor and not ceiling vents). The indoor HVAC unit closet is probably the most vulnerable area unless modifications have been made to the home.

I agree with the height off the floor... 1 to 2 feet.

Ambient temperature can mean different things. It usually means room temperature or 70-75F. As such the heat should probably be run a little in the house. I would suggest getting the house up to temperature before sampling.

Volume of air covered by sampling: That's tricky. Each 240 L sampling does not necessarily mean 240 L of the house volume has been accounted for. Air is constantly moving and exchanging. I think we just have to assume each sample would only really represent any particular room.

**From:** Enders, Jhana

**Sent:** Thursday, January 26, 2017 10:44 AM

**To:** May, Shaun

**Cc:** 'Milton, S'; [Heidi.Bojes@dshs.state.tx.us](mailto:Heidi.Bojes@dshs.state.tx.us); Young, Patrick; Turner, Philip; Stoughton, Casie

**Subject:** RE: Final Sampling Protocol and Detection level - (b) (6) Street

Here is some additional information along with attached files for the health group to consider. Is Joseph Haney/TCEQ working with you all? I haven't seen his name on any of the emails. Thanks.

1) Is there an optimal temperature?

1. The precision of the overall procedure at the 95% confidence level for the ambient temperature 17-day storage test (at the target concentration) from mercuric chloridetreated filters is  $\pm 10.8\%$ . This includes an additional 5% for sampling pump variability. The recovery of phosphine from samples used in a 17-day storage test remained above 94.8% when the samples were stored at ambient temperature.

2) Is there an optimal height of the floor?

1. OSHA Method 1003 is designed for personnel sampling of workplace air. Nothing is

specifically outlined in the attached documents, but personnel air sampling for worker protection is generally conducted at breathing height. Mercury air sampling is collected at approximately 3 feet above the ground (child breathing height). Vapor density for phosphine is >1 (settles in air).

3) How much square footage can the sample results be applied to or cover?

1. Sampling procedure is 1 liter per minute for 240 minutes, for a total 240 liters submitted for analysis. 240 liters = 8.475520 ft<sup>3</sup>. The home is approximately 1,080 ft<sup>2</sup>. Assuming the ceilings are approximately 8 feet tall, the volume of the house would be an estimated 8,640 ft<sup>3</sup>.



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**From:** Enders, Jhana

**Sent:** Thursday, January 26, 2017 10:19 AM

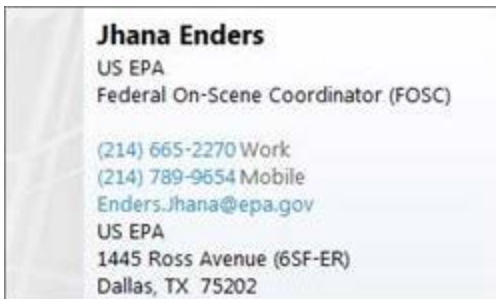
**To:** 'May, Shaun' <[Shaun.May@amarillo.gov](mailto:Shaun.May@amarillo.gov)>

**Cc:** 'Milton, S' <[s.milton@ttuhsc.edu](mailto:s.milton@ttuhsc.edu)>

**Subject:** RE: Final Sampling Protocol and Detection level - (b) (6) Street

I will do a little more research on this end but these need to go to Heidi and the group to discuss.

Thanks.



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**From:** May, Shaun [<mailto:Shaun.May@amarillo.gov>]

**Sent:** Thursday, January 26, 2017 8:56 AM

**To:** Enders, Jhana <[Enders.Jhana@epa.gov](mailto:Enders.Jhana@epa.gov)>

**Cc:** 'Milton, S' <[s.milton@ttuhsc.edu](mailto:s.milton@ttuhsc.edu)>

**Subject:** RE: Final Sampling Protocol and Detection level - (b) (6) Street

Good morning Jhana,

I have a few questions for you and/or your contractors concerning the sample collection methodology under OSHA Method 1003 for Phosphine Gas

1) Is there an optimal temperature?

2) Is there an optimal height of the floor?

3) How much square footage can the sample results be applied to or cover?

Thanks

Shaun

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**Shaun C. May, M.P.H., R.E.H.S.**  
**Environmental Health Director**  
**Bi-City-County Health District**  
[shaun.may@amarillo.gov](mailto:shaun.may@amarillo.gov)

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**From:** Enders, Jhana [<mailto:Enders.Jhana@epa.gov>]  
**Sent:** Wednesday, January 25, 2017 5:25 PM  
**To:** May, Shaun  
**Subject:** RE: Final Sampling Protocol and Detection level - (b) (6) Street  
Thanks Shaun



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**From:** May, Shaun [<mailto:Shaun.May@amarillo.gov>]  
**Sent:** Wednesday, January 25, 2017 5:23 PM  
**To:** Enders, Jhana <[Enders.Jhana@epa.gov](mailto:Enders.Jhana@epa.gov)>  
**Cc:** Orton, Chip <[Chip.Orton@amarillo.gov](mailto:Chip.Orton@amarillo.gov)>; [eddy.vance@tceq.texas.gov](mailto:eddy.vance@tceq.texas.gov);  
[david.durst@tceq.texas.gov](mailto:david.durst@tceq.texas.gov); Chester, BJ <[BJ.Chester@amarillo.gov](mailto:BJ.Chester@amarillo.gov)>; Milton, S  
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<[Turner.Philip@epa.gov](mailto:Turner.Philip@epa.gov)>; Britten, Brad <[Brad.Britten@amarillo.gov](mailto:Brad.Britten@amarillo.gov)>; West, Theresa  
<[Theresa.West@amarillo.gov](mailto:Theresa.West@amarillo.gov)>; Stoughton, Casie <[Casie.Stoughton@amarillo.gov](mailto:Casie.Stoughton@amarillo.gov)>  
**Subject:** Re: Final Sampling Protocol and Detection level - (b) (6) Street  
I see. Ok, I will consult with Dr. Milton.  
Shaun

Sent from my iPhone

On Jan 25, 2017, at 5:15 PM, Enders, Jhana <[Enders.Jhana@epa.gov](mailto:Enders.Jhana@epa.gov)> wrote:

We monitored at multiple locations as there was no specific guidance given. Would like a recommendation from the group to ensure we are accurately addressing any concerns you might have. Thanks.

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**From:** May, Shaun [<mailto:Shaun.May@amarillo.gov>]  
**Sent:** Wednesday, January 25, 2017 5:09 PM  
**To:** Enders, Jhana <[Enders.Jhana@epa.gov](mailto:Enders.Jhana@epa.gov)>; Orton, Chip  
<[Chip.Orton@amarillo.gov](mailto:Chip.Orton@amarillo.gov)>; [eddy.vance@tceq.texas.gov](mailto:eddy.vance@tceq.texas.gov);  
[david.durst@tceq.texas.gov](mailto:david.durst@tceq.texas.gov); Chester, BJ <[BJ.Chester@amarillo.gov](mailto:BJ.Chester@amarillo.gov)>  
**Cc:** 'Milton, S' <[s.milton@ttuhsc.edu](mailto:s.milton@ttuhsc.edu)>; Bojes, Heidi (DSHS)  
<[Heidi.Bojes@dshs.state.tx.us](mailto:Heidi.Bojes@dshs.state.tx.us)>; Turner, Philip <[Turner.Philip@epa.gov](mailto:Turner.Philip@epa.gov)>; Britten,  
Brad <[Brad.Britten@amarillo.gov](mailto:Brad.Britten@amarillo.gov)>; West, Theresa <[Theresa.West@amarillo.gov](mailto:Theresa.West@amarillo.gov)>;

Stoughton, Casie <[Casie.Stoughton@amarillo.gov](mailto:Casie.Stoughton@amarillo.gov)>

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My assumption is that they would be the same number and the same locations that were used during the air monitoring phase as we are conducting confirmatory sampling. I would certainly defer to any recommendations from Dr. Milton, Dr. Bojes, and Dr. Turner. However, if specific numbers and locations were not used each time during the monitoring phase, then we will need obviously need to determine numbers and locations.

Shaun

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**From:** Enders, Jhana [<mailto:Enders.Jhana@epa.gov>]

**Sent:** Wednesday, January 25, 2017 5:04 PM

**To:** May, Shaun; Orton, Chip; [eddy.vance@tceq.texas.gov](mailto:eddy.vance@tceq.texas.gov); [david.durst@tceq.texas.gov](mailto:david.durst@tceq.texas.gov); Chester, BJ

**Cc:** 'Milton, S'; Bojes, Heidi (DSHS); Turner, Philip; Britten, Brad; West, Theresa; Stoughton, Casie

**Subject:** RE: Final Sampling Protocol and Detection level - (b) (6) Street

Ok, need just a little more info...how many samples and where do you want them collected from? Thanks.

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**From:** May, Shaun [<mailto:Shaun.May@amarillo.gov>]

**Sent:** Wednesday, January 25, 2017 2:59 PM

**To:** Orton, Chip <[Chip.Orton@amarillo.gov](mailto:Chip.Orton@amarillo.gov)>; Enders, Jhana

<[Enders.Jhana@epa.gov](mailto:Enders.Jhana@epa.gov)>; [eddy.vance@tceq.texas.gov](mailto:eddy.vance@tceq.texas.gov); [david.durst@tceq.texas.gov](mailto:david.durst@tceq.texas.gov);

Chester, BJ <[BJ.Chester@amarillo.gov](mailto:BJ.Chester@amarillo.gov)>

**Cc:** 'Milton, S' <[s.milton@ttuhsc.edu](mailto:s.milton@ttuhsc.edu)>; Bojes, Heidi (DSHS)

<[Heidi.Bojes@dshs.state.tx.us](mailto:Heidi.Bojes@dshs.state.tx.us)>; Turner, Philip <[Turner.Philip@epa.gov](mailto:Turner.Philip@epa.gov)>; Britten,

Brad <[Brad.Britten@amarillo.gov](mailto:Brad.Britten@amarillo.gov)>; West, Theresa <[Theresa.West@amarillo.gov](mailto:Theresa.West@amarillo.gov)>;

Stoughton, Casie <[Casie.Stoughton@amarillo.gov](mailto:Casie.Stoughton@amarillo.gov)>

**Subject:** Final Sampling Protocol and Detection level - (b) (6) Street

**Importance:** High

Good morning everyone,

Dr. Milton, myself, Dr. Bojes, and Dr. Turner discussed final confirmation sampling for Carolyn Street yesterday afternoon. Dr. Bojes and Dr. Turner presented their recommendation for the detection level and methodology for confirmation sampling. Their recommendation to Dr. Milton was to use the OSHA Method 1003 for Phosphine Gas. The detection level for this method is 10 ppb or 13 µg/m³. Dr. Milton has agreed to proceed with the recommendation. Dr. Turner will be coordinating with Jhana and the contractors under her supervision. At this time, we do not have a exact time estimate on the delivery of the sampling cassettes or their arrival on-site here in Amarillo. It is our understanding that Jhana, with support from Dr. Turner, will be overseeing the confirmation sampling protocol.

I have attached a link to the sampling protocol for reference -

<https://www.osha.gov/dts/sltc/methods/mdt/mdt1003/1003.html>

Please let me know if you have any questions or concerns.  
Additionally, I have spoken with Dr. Milton and he approves dropping the 24-security detail for the property/home provided that the gate to the property can be locked/secured along with the home being secured/locked.

Thanks

Shaun



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